Section 1. Documentation Guide

The following Technical Notes describe how consumption estimates contained in the State Energy Data System (SEDS) are derived. The following six sections, one for each energy source and total energy, provide: descriptions of all the data series that are entered into SEDS; the formulas applied in SEDS for creating additional data series; and notes on special circumstances for any series.

Appendix A is an alphabetical listing of the variable names and formulas used in the system; Appendix B lists the conversion factors used in SEDS to convert physical units into British thermal units and gives the sources for those factors; Appendix C provides the U.S. Department of Commerce, Bureau of the Census, resident population data used in per capita calculations; Appendix D presents the real gross domestic product by State used to calculate total energy per chained (2000) dollar of output; Appendix E provides metric and other physical conversion factors for measures used in energy analyses; and Appendix F summarizes changes in SEDS content made since the last complete release of data.

There are over 400 variables used in SEDS to create the estimates in this report. All of the variables are identified by seven-letter names, such as MGTCPAL. In the following example, MGTCPAL is the identifying code for data on motor gasoline total consumption in physical units in Alabama:

Characters:	MG	TC	P	AL
Positions:	1 and 2	3 and 4	5	6 and 7
Identity:	Type of Energy or Product	Energy activity or consumption end-use sector	Type of data	Geographic

The energy sources and products in SEDS, which are represented by the first two letters of the variable name, are:

AB	=	aviation gasoline blending components
AI	=	aluminum ingot
AR	=	asphalt and road oil
AS	=	asphalt
AV	=	aviation gasoline
BM	=	biomass
CC	=	coal coke
CG	=	corrugated and solid fiber boxes
CL	=	coal
CO	=	crude oil, including lease condensate
CT	=	catalytic cracking
DF	=	distillate fuel oil
DK	=	distillate fuel oil, including kerosene-type jet fuel
EL	=	electricity
EN	=	fuel ethanol
ES	=	electricity sales
FF	=	fossil fuels
FN	=	petrochemical feedstocks, naphtha less than 401° F
FO	=	petrochemical feedstocks, other oils equal to or greater than 401° F
FS	=	petrochemical feedstocks, still gas
GE	=	geothermal energy
HV	=	conventional hydroelectric power
HY	=	hydroelectric power
JF	=	jet fuel
JK	=	jet fuel, kerosene-type
JN	=	jet fuel, naphtha-type
KS	=	kerosene
LG	=	liquefied petroleum gases
LO	=	electrical system energy losses
LU	=	lubricants

MB = motor gasoline blending components
MG = motor gasoline
MM = motor gasoline excluding fuel ethanol
MS = miscellaneous petroleum products
NA = natural gasoline (including isopentane)
NG = natural gas (including supplemental gaseous fuels)
NN = natural gas excluding supplemental gaseous fuels
NU = nuclear electric power
OC = organic chemicals
P1 = asphalt and road oil, aviation gasoline, kerosene, lubricants, and "other petroleum products"
PA = all petroleum products
PC = petroleum coke
PI = paints and allied products
PL = plant condensate
PM = all petroleum products excluding ethanol blended into motor gasoline
PO = other petroleum products
PP = pentanes plus
RD = road oil
RE = renewable energy
RF = residual fuel oil
SF = supplemental gaseous fuels
SG = still gas
SN = special naphtha
SO = photovoltaic and solar thermal energy
TE = total energy
TN = total net energy (net of electrical system energy losses)
UO = unfinished oils
US = unfractionated stream
WD = wood
WS = waste
WW = wood and waste
WX = waxes
WY = wind

The consumption end-use sectors, identified by characters three and four of each variable name, such as:

AC = transportation sector consumption
CC = commercial sector consumption
EG = electric power sector generation (also consumption)

EI = electric power sector consumption
IC = industrial sector consumption
RC = residential sector consumption
TC = total consumption of all sectors

Many other characters occur in the third and fourth positions of the variable names for the sales, deliveries, and distribution data series used in the intermediate calculations in SEDS to derive the end-use consumption estimates. Examples of these codes are:

BK = sales for use in vessel bunkering
CA = capacity
KC = consumption at coke plants
LP = lease and plant fuel
IN = deliveries to the industrial sector
OD = distribution to other industrial users
VA = value-added in manufacture

Combining the first two components (the first four letters) produces variable names, such as:

RFBK = residual fuel oil sold for vessel bunkering
RFAC = residual fuel oil consumed by the transportation sector
NGIN = natural gas (including supplemental gaseous fuels) delivered to the industrial sector
NGIC = natural gas (including supplemental gaseous fuels) consumed by the industrial sector

The fifth character of the variable names in SEDS identifies the type of data by using one of the following letters:

B = data in British thermal units (Btu)
K = factor for converting data from physical units to Btu
M = data in alternative physical units
P = data in standardized physical units
S = share or ratio expressed as a fraction
V = value in million dollars

In general, Data entered into SEDS are in physical units, represented by a "P" in the fifth character; for example, coal data are in thousand short tons, petroleum data are in thousand barrels, and natural gas data are in million cubic feet. In a few cases, data are obtained from the source

documents in different units, such as thousand gallons instead of thousand barrels, and are represented by an "M" until converted in SEDS to the unit that is consistent with other variables. Conversion factors, represented by a "K" in the fifth character, are applied to the physical unit data to convert the data to British thermal units, a common unit for all forms of energy. The derived data series in thousand British thermal units are represented by "B" in the fifth character. In a few cases, consumption estimates are derived by calculating shares of aggregated consumption data. The fractions used to calculate the consumption shares are identified by an "S" in the fifth character. The consumption estimates for some petroleum products are based on the value added in the manufacturing process by related industries in each State. The data series for those industry activities are in million dollars, and the variable names contain "V" in the fifth character.

There are a few variables that do not follow the convention:

TPOPP = resident population
GDPRX = real gross domestic product
TETGR = total energy consumption per real dollar of GDP

Per capita consumption is represented by "TP" in the third and fourth positions of the variable name.

The last two characters of each variable name are for geographic identification. Geographic areas used in SEDS are the 50 States and the District of Columbia (represented by the U.S. Postal Service State abbreviations) and the United States as a whole. Some estimates of electricity sales and losses are derived by using only the contiguous 48 States and the District of Columbia, and the variables used in those calculations are identified by "48" in the last two characters of the names. The geographic area codes used in SEDS are shown in Table TN1.

Throughout this report, the term "State" includes the District of Columbia. Throughout this documentation, "ZZ" is used as a geographic identifier to represent the different State abbreviations that would be interchanged in that position of the variable name.

Table TN1. Geographic Area Codes Used in the State Energy Data System

Code	State	Code	State
AK	Alaska	NC	North Carolina
AL	Alabama	ND	North Dakota
AR	Arkansas	NE	Nebraska
AZ	Arizona	NH	New Hampshire
CA	California	NJ	New Jersey
CO	Colorado	NM	New Mexico
CT	Connecticut	NV	Nevada
DC	District of Columbia	NY	New York
DE	Delaware	OH	Ohio
FL	Florida	OK	Oklahoma
GA	Georgia	OR	Oregon
HI	Hawaii	PA	Pennsylvania
IA	Iowa	RI	Rhode Island
ID	Idaho	SC	South Carolina
IL	Illinois	SD	South Dakota
IN	Indiana	TN	Tennessee
KS	Kansas	TX	Texas
KY	Kentucky	UT	Utah
LA	Louisiana	VA	Virginia
MA	Massachusetts	VT	Vermont
MD	Maryland	WA	Washington
ME	Maine	WI	Wisconsin
MI	Michigan	WV	West Virginia
MN	Minnesota	WY	Wyoming
MO	Missouri	US	United States
MS	Mississippi	48	The contiguous 48 States
MT	Montana		and the District of Columbia